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**U.S. Joint Numerical Weather Prediction Unit  
A Selected Bibliography**

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National Environmental Satellite, Data, and Information Service,  
National Oceanographic Data Center  
NOAA Central Library  
Silver Spring, MD  
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**Preface**

This bibliography has been prepared in the NOAA Central Library on the occasion of the Symposium on the 50<sup>th</sup> Anniversary of Operational Numerical Weather Prediction, 14 - 17 June 2004, at The University of Maryland, College Park, Maryland. The focus of this selection is on the early publications in numerical weather prediction mainly by the staff members of the U.S. Joint Numerical Weather Prediction Unit and later by the National Meteorological Center. The bibliography also incorporates the list of historical publications selected by Dr. Eugenia Kalnay, Dept of Meteorology, University of Maryland, and prepared by Major Jimmie Trigg, USAF, Air Force Liaison

Officer to the NOAA's National Centers for Environmental Prediction (NCEP). Most of the included publications are available in print in the NOAA Central Library and/or in an electronic format via NOAALINC, its online catalog at:

<http://www.lib.noaa.gov/uhtbin/webcat> . Many early publications have been scanned and are available in full text, in PDF format, either directly online or from the included CD-ROM. Some of the entries are accompanied by an abstract. The bibliographic citations have been based on Chicago Manual of Style, 15<sup>th</sup> edition and are organized in the author and title order. Notes and explanations are included in brackets. Symbols "less than" (<) and "greater than" (>) are used to indicate first and/or latest issue consulted. The bibliography was compiled using the Microsoft Word program. To access full text documents hold CTRL key plus click to follow link(s).

Thanks go to Doria Grimes and Diana Abney, Librarians, and Dr. Elaine Collins, Information Specialist at the NOAA Central Library, and to Kenneth Campana of the NOAA's National Centers for Environmental Prediction (NCEP) for support and help with creating this bibliography.

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This bibliography is also available online at:

**[http://docs.lib.noaa.gov/JNWPU/Bibliography\\_06\\_2004](http://docs.lib.noaa.gov/JNWPU/Bibliography_06_2004)**

*Activities of the Joint Numerical Weather Prediction Unit*. 1954?-June 1961? Suitland, Md.: Joint Numerical Weather Prediction Unit (U.S.)

QC996 .J64 1955-1961 (Incomplete)

Continued by: *Activities of the Numerical Weather Prediction Group, National Meteorological Center, U.S. Weather Bureau.*

*Activities of the Numerical Weather Prediction Group, National Meteorological Center, U.S. Weather Bureau*. July/Sept. 1961?-1963. National Meteorological Center (U.S.) Suitland, Md.: Numerical Weather Prediction Group.

QC996 .J64 1962-1963 (Incomplete)

Previous title: *Activities of the Joint Numerical Weather Prediction Unit.*

Continued by: *Numerical Weather Prediction Activities, National Meteorological Center.*

Allen, Roger A. 1942. *A review of some methods of long range forecasting: a technical note.* Washington, D.C.: U.S. Dept. of Commerce, Weather Bureau.  
Abstract: "The results of these studies have been compiled in individual reports which have been published as a group in Supplement No. 39 of the Monthly Weather Review, entitled 'Reports on Critical Studies of Methods of Long-Range Forecasting.' Credit for the work goes entirely to the authors of the separate reports; the purpose of this present paper is only to summarize briefly the methods and conclusions as to their reliability as given in the published report."

QC997 .A45 1942

Arnason, Geirmundur. 1957. *A Convergent method for solving the balance equation.* Washington, D.C.: U.S. Dept. of Commerce, Weather Bureau, Joint Numerical Weather Prediction Unit. Mimeograph. "January 10, 1957."

QC996 .T357 1957

CD-ROM: [Arnason\\_1957.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Arnason\\_1957.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Arnason_1957.PDF)

Arnason, Geirmundur. 1956. *Convergence rates of Liebmann's and Richardson's iterative methods when applied to the solution of a system of Helmholtz'-type equations.* 1956. Washington, D.C.: Joint Numerical Weather Prediction Unit. Mimeograph. *Technical memorandum (Joint Numerical Weather Prediction Unit (U.S.));* no. 10. "July, 16, 1956."

QC996 .T33 no.10

CD-ROM: [Arnason\\_1956.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Arnason\\_1956.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Arnason_1956.PDF)

Arnason, Geirmundur. 1955. *Results of 24-hour barotropic forecasts for the 100 mb pressure surface.* Washington, D.C.: Joint Numerical Weather Prediction Unit. Mimeograph. *Technical memorandum (Joint Numerical Weather Prediction Unit (U.S.));* no. 8. "Oct. 14, 1955."

QC996 .T33 no.8

CD-ROM: [Arnason\\_1955.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Arnason\\_1955.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Arnason_1955.PDF)

Auer, Stephen J. 1983. *Gulf Stream system Landward surface edge statistics.* Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC;* 67. "October 1983."

QC996 .T33 no.67

Bedient, H. A., George P. Cressman. 1957. *An experiment in automatic data processing.* *Monthly Weather Review* 85 (10): 333-340.

JOURNALS

CD-ROM: [mwr-Bedient\\_Cressman\\_1957\\_Oct.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/mwr/085/mwr-085-10-0333.pdf>

Bergthórrson, Páll, Bo R. Döös. 1955. Numerical weather map analysis. *Tellus* 7: 329-340

JOURNALS

CD-ROM: [Bergthorrson 1955.PDF](#)

Berson, F. A. 1962. On the influence of variable large-scale wind systems on the heat balance in the active layer of the ocean. Washington, D.C.: U.S. Dept. of Commerce, Weather Bureau,

National Meteorological Center. Mimeograph. *Technical memorandum (National Meteorological Center (U.S.))*; no. 25. "July 1962."

QC996 .T33 no.25

CD-ROM: [Berson 1962.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Berson\\_1962.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Berson_1962.PDF)

Bjerknes, Vilhelm. 1954. The problem of weather forecasting as a problem in mechanics and physics. Translated by: Yale Mintz in 1954, from: *Das Problem der Wettervorhersage, betrachtet vom Standpunkte der Mechanik und der Physik*. 1904

QC995 .B5513 1954

Bjerknes, Vilhelm. 1999. The problem of weather forecasting as a problem in mechanics and physics. Translated by: Yale Mintz in 1954, from: *Das Problem der Wettervorhersage, betrachtet vom Standpunkte der Mechanik und der Physik*. 1904.

Reprinted in: *The life cycles of extratropical cyclones*. Melvyn A. Shapiro, Sigbjørn Grønås, editors. Boston, Mass.: American Meteorological Society, p. 1-4.

QC940.6 .L54 1999

CD-ROM: [Bjerknes Repr 1999.PDF](#)

Bolin, B. 1950. On the influence of the Earth's orography on the general character of westerlies.

*Tellus* 2 (3): 184-195.

JOURNALS

CD-ROM: [Bolin 1950.PDF](#)

Bonner, William D., Robert Van Haaren, Christopher M. Hayden. 1976. Operational-type analyses derived without radiosonde data from Nimbus 5 and NOAA 2 temperature soundings. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 58. "March 1976."

QC996 .T33 no.58

Bonner, William D., Paul L. Lemar, Robert J. Van Haaren, Armand J. Desmarais, and Hugh M. O'Neil. 1976. A test of the impact of NOAA-2 VTPR soundings on operational analyses and forecasts. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 57. "February 1976."

QC996 .T33 no.57

Brown, John A. 1962. Abstracts of recent Soviet publications on numerical prediction, 1961. Washington, D.C.: U.S. Dept. of Commerce, Weather Bureau, National Meteorological Center. *Technical memorandum (National Meteorological Center (U.S.))*; no. 24. "July 1962."

QC996 .T33 no.24

CD-ROM: [Brown 1962.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Brown\\_1962.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Brown_1962.PDF)

Brown, John A., Jr. 1959. Multiple linear regression equations expressing heights of certain pressure surfaces. Washington, D.C.: Joint Numerical Weather Prediction Unit. Mimeograph. *Technical memorandum (Joint Numerical Weather Prediction Unit (U.S.))*; no. 15. "April 7, 1959."

QC996 .T33 no.15

CD-ROM: [Brown 1959.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Brown\\_1959.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Brown_1959.PDF)

Bulletin (Joint Numerical Weather Prediction Unit (U.S.)). No.1 (1955)-no. 33 (1960). Suitland, Md.: U.S. Dept. of Commerce, Weather Bureau, Joint Numerical Weather Prediction Unit.

QC980 .T45 no. 1 (Effective 6 May, 1955)-no. 33 (Dec. 15, 1960) Incomplete

CD-ROM: [Bulletins 1-36.PDF](#)

Bulletin (National Meteorological Center (U.S.)). No.34 (1960)-no.38 (1967). Suitland, Md.: U.S. Dept. of Commerce, Weather Bureau, National Meteorological Center.

QC980 .T45 no. 34 (Dec. 1961)-no. 36 (1964) [Nos. 37-38, missing]

CD-ROM: [Bulletins 1-36.PDF](#)

Continued by: *Technical Procedures Bulletin*.

Campana, Kenneth. A.1978. Addition of orography to the semi-implicit version of the Shuman-Hovermale model. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 62. "April 1978."

QC996 .T33 no.62

Campana, Kenneth. A.1978. Semi-implicit higher order version of the Shuman-Hovermale

model. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 61. "April 1978."

QC996 .T33 no.61

Campana, Kenneth. A. 1974. Status report on a semi-implicit version of the Shuman-Hovermale model. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 54. "March 1974."

QC996 .T33 no.54

Carstensen, Louis P. 1958. The comparison of geostrophic and Stream winds with

observed winds. Washington, D.C.: Joint Numerical Weather Prediction Unit. Mimeograph. *Technical memorandum (Joint Numerical Weather Prediction Unit (U.S.))*; no. 14. "December 11, 1958."

QC996 .T33 no.14

CD-ROM: [Carstensen 1958.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Carstensen\\_1958.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Carstensen_1958.PDF)

Charney, Jule G., William J. Quirk, Shu Hsien Chow, Jack Kornfield. 1977? A comparative study of the effects of Albedo change on drought in semi-arid regions. New York: Institute for Space Studies, Goddard Space Flight Center, National Aeronautics and Space Studies.

QC929.D8 C6 1977

Charney, Jule G. 1951. Dynamic forecasting by numerical process. In: *Compendium of Meteorology*. Boston, Mass.: American Meteorological Society, p. 470-482.

C852 .A5 1951

CD-ROM: [Charney 1951.PDF](#)

Charney, Jule G. 1947. The dynamics of long waves in a baroclinic westerly current. *Journal of Meteorology* 4 (5): 135-162.

JOURNALS

CD-ROM: [Charney 1947.PDF](#)

Charney, Jule G. 1967. The intertropical convergence zone and the Hadley circulation of the atmosphere. Cambridge, Mass.: Dept. of Meteorology, Massachusetts Institute of Technology.

QC880.4.I6 C3 1967

Charney, Jule G., R. Fjørtoft, J. von Neumann. 1950. Numerical integration of the barotropic vorticity equation. *Tellus* 2 (4): 237-254.

JOURNALS

CD-ROM: [Charney Fjortoft Neumann 1950.PDF](#)

Charney, Jule G., Norman A. Phillips. 1953. Numerical integration of the quasi-geostrophic equations for barotropic and simple baroclinic flows. *Journal of Meteorology* 10 (2): 71-99.

JOURNALS

CD-ROM: [Charney Phillips 1953.PDF](#)

Charney, Jule G., A. Eliassen. 1949. A numerical method for predicting the perturbations of the middle latitude westerlies. *Tellus* 1 (2): 38-54.

JOURNALS

CD-ROM: [Charney Eliassen 1949.PDF](#)

Charney, Jule G. 1949. On a physical basis for numerical prediction of large-scale motions in the atmosphere. *Journal of Meteorology* 6 (6): 371-385.

JOURNALS

CD-ROM: [Charney 1949.PDF](#)

Charney, Jule. G. 1948. *On the scale of atmospheric motions*. *Geofysiske Publikasjoner* 17 (2): 3-17.

QC801 .N67 v.17, no.2

CD-ROM: [Charney 1948.PDF](#)

Charney, Jule. G. 1950. *Progress in dynamic meteorology*. *Bulletin of the American Meteorological Society* 31 (7): 231-236.

JOURNALS

CD-ROM: [Charney 1950.PDF](#)

Clapp, Philip F. 1968. *Northern Hemisphere cloud cover for selected late fall seasons using TIROS nephanalyses*. Suitland, Md.: U.S. Dept. of Commerce, Weather Bureau. *ESSA Technical Memorandum*; 44. "December 1968."

Abstract: "Northern Hemisphere fields of mean cloudiness were constructed using TIROS nephanalyses for the late-fall seasons (Oct. to Dec.) of 3 years, 1962-64. These may be useful in studies of cloud climatology and year-to-year variations of the earth-atmosphere heat budget; and for designing and testing cloud-modeling procedures in numerical experiments. Shortcomings were revealed in the present subjective nephanalysis documentation which hopefully will soon be corrected by the promising work now going on in digitizing the video pictures."

QC996 .T33 no.44

CD-ROM: [Clapp 1968.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Clapp\\_1968.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Clapp_1968.PDF)

Clapp, Philip F., Francis J. Winninghoff. 1965. *Tropospheric heating and cooling for selected days and locations over the United States during winter 1960 and spring 1962*. Washington, D.C.: U.S. Dept. of Commerce, Environmental Science Services Administration, Weather Bureau, National Meteorological Center.] *Technical note (United States. Weather Bureau)* ; 22. *Technical memorandum (National Meteorological Center (U.S.))*; no. 34. "November 1965."

QC996 .T33 no.34

CD-ROM: [Clapp Winninghoff 1965.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Clapp\\_Winninghoff\\_1965.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Clapp_Winninghoff_1965.PDF)

Clapp, Philip F. 1962. *Vertical distribution of atmospheric heating and cooling at Washington, D.C., June and July 1961*. Washington, D.C.: U.S. Dept. of Commerce, Weather Bureau, National Meteorological Center. *Technical memorandum (National Meteorological Center (U.S.))*; no. 21. "June 1962."

QC996 .T33 no.21

CD-ROM: [Clapp 1962.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Clapp\\_1962.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Clapp_1962.PDF)

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QC996 .C62 4<sup>th</sup> (1979)-12<sup>th</sup> (1998)

13<sup>th</sup> (1999) bound with: QC994.95 .C6 17<sup>th</sup> (1999)

14<sup>th</sup> (2001) bound with: QC994.95 .C6 18<sup>th</sup> (2001)  
15<sup>th</sup> (2002) bound with: QC994.95 .C67 19<sup>th</sup> (2002)  
Internet: 16<sup>th</sup> (2004) <http://www.ametsoc.org/meet/84annual>

Cressman, George P. 1958. *Barotropic divergence and very long atmospheric waves*. *Monthly Weather Review* 86 (8): 293-297.

JOURNALS

CD-ROM: [mwr-Cressman 1958 Aug.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/mwr/086/mwr-086-08-0293.pdf>

Cressman, George P. 1961. *A diagnostic study of mid-tropospheric development*. *Monthly Weather Review* 89 (3):74-82.

JOURNALS

CD-ROM: [mwr-Cressman 1961 March.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/mwr/089/mwr-089-03-0074.pdf>

Cressman, George P. 1960. *Improved terrain effects in barotropic forecasts*. *Monthly Weather Review* 88 (9):327-342.

JOURNALS

CD-ROM: [mwr-Cressman 1960 Sept Dec.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/mwr/088/mwr-088-09-0327.pdf>

Cressman, George P. 1957. *An objective analysis study*. Washington, D.C.: Joint Numerical Weather Prediction Unit. Mimeograph. *Technical memorandum (Joint Numerical Weather Prediction Unit (U.S.))*; no. 12. "June 1957."

Abstract: "The method of objective analysis used by Joint Numerical Weather Prediction Unit is described. The 12-hour forecast is used as a starting map. The height field of the forecast is modified to eliminate large scale height errors from the forecast and is then used as a preliminary map for the final objective analysis. The final analysis fits the data around each point to a quadratic surface representing the height field. The 12-hour forecast wind and the preliminary heights, suitably weighted, are used as auxiliary data. In collaboration with Major H.A. Bédient, a modification of this method of analysis has been developed for nongeostrophic objective analysis, i.e., one in which the relation between winds and heights is described by the balance equation. The results of preliminary tests are given."

QC996 .T33 no.12

CD-ROM: [Cressman 1957.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/JNWP/Cressman 1957.PDF>

Cressman, George P. 1959. *An operational objective analysis system*. *Monthly Weather Review* 87 (10):367-374.

JOURNALS

CD-ROM: [mwr-Cressman 1959 Oct.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/mwr/087/mwr-087-10-0367.pdf>

Cressman, George P., W. E. Hubert. 1957. *A study of numerical forecasting errors*. *Monthly Weather Review* 85 (7): 235-242.

JOURNALS

CD-ROM: [mwr-Cressman Hubert 1957 July.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/mwr/085/mwr-085-07-0235.pdf>

Cressman, George P. 1992-1995. [Personal letters to Anders Persson, 1992-1995.]

CD-ROM: [Cressman 1992-1995.PDF](#)

Cressman, George P. 1963. *A Three-level model suitable for daily numerical forecasting*. Washington, D.C.: U.S. Dept. of Commerce, Weather Bureau, National Meteorological Center. *Technical memorandum (National Meteorological Center (U.S.))*; no. 22.

QC996 .T33 no.22

CD-ROM: [Cressman 1963.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Cressman\\_1963.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Cressman_1963.PDF)

Derome, Jacques, Wiin-Nielsen, A. 1971. *The response of a middle-latitude model atmosphere to forcing by topography and stationary heat sources*. *Monthly Weather Review* 99 (7):564-576.

JOURNALS

CD-ROM: [mwr-Derome Wiin-Nielsen 1971 July.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/mwr/099/mwr-099-07-0564.pdf>

Desmarais, Armand J. 1972. *Updating asynoptic data for use in objective analyses*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 51. "December 1972."

QC996 .T33 no.51

Dey, Clifford H., John A. Brown, Jr. 1976. *Decomposition of a wind field on the sphere*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 59. "April 1976."

QC996 .T33 no.59

Dey, Clifford H., Ralph A. Petersen, Bradley A. Ballish, Peter M. Caplan, Lauren L. Morone, H. Jean Thiebaut, Glen H. White, Henry E. Fleming, Anthony L. Reale, Donald G. Gray, Mitchell D. Goldberg, Jamie M. Daniels. 1989. *An evaluation of NESDIS TOVS physical retrievals using data impact studies*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 69. "June 1989."

Abstract: "A new NESDIS technique to produce temperature profiles from radiance information measured by satellite-borne sensors has been evaluated. The new procedure relies on explicit knowledge of the physical processes involved, while the previous operational procedure required only a set of a priori statistics. The evaluation was performed using data impact studies, a departure from the previous NMC practice of using only collocation statistics to make such evaluations. Two real-time data impact studies were performed. The results of the second data impact study led to operational use of temperature retrievals produced by the new method, beginning on September 20, 1988. The experiments demonstrate the necessity for a close cooperation between a data

producer (NESDIS) and a data user (NMC) as the meteorological community moves toward an era of consolidated data assimilation procedures.”

QC996 .T33 no.69

Eady, E. T. 1949. Long waves and cyclone waves. *Tellus* 1 (3): 33-52.

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CD-ROM: [Eady\\_1949.PDF](#)

Eady, E. T. 1952. Note on weather computing and the so-called 2 1/2- dimensional model. *Tellus* 4 (3): 157-167.

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Eliassen, Arnt. 1962. On the use of a material layer model of the atmosphere in numerical prediction. In: International Symposium on Numerical Weather Prediction (1960 :Tokyo, Japan). Proceedings of the International Symposium on Numerical Weather Prediction in Tokyo. Tokyo: Meteorological Society of Japan, 1962, p. 207-210.

QC996 .I58 1960

CD-ROM: [Eliassen\\_1962.PDF](#)

Eliassen, Arnt. 1956. A procedure for numerical integration of the primitive equations of the two-parameter model of the atmosphere. [Los Angeles, Calif.: University of California, Los Angeles, Dept. of Meteorology.] *Scientific report (University of California, Los Angeles. Dept. of Meteorology : 1953)*; no. 4. [Contract No. AF19(604)-1286.]

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Eliassen, Arnt. 1954. Provisional report on calculation of spatial covariance and autocorrelation of the pressure field. Reprinted from: Norske videnskaps-akademi. Institutt for Vær-og Klimaforskning. Reports; no. 5 (Appendix). “September 1954.”

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Eliassen, Arnt. 1949. The quasi-static equations of motion with pressure as independent variable. *Geofysiske Publikasjoner* 17 (3): 5-44.

QC801 .N67 v.17, no.3

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Eliassen, Arnt. 1952. Simplified dynamic models of the atmosphere, designed for the purpose of numerical weather prediction. *Tellus* 4 (3): 145-156.

JOURNALS

CD-ROM: [Eliassen\\_1952.PDF](#)

Fawcett, Edwin B. 1962. Six years of operational numerical weather prediction. Reprinted from: *Journal of Applied Meteorology* 1(3): 318-332.

QC996. F34 1962

Feit, David M. 1986. Compendium of marine meteorological and oceanographic products

*of the Ocean Products Center*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 68. "September 1986."

QC996 .T33 no.68

Feit, David M. 1989 *Compendium of marine meteorological and oceanographic products of the Ocean Products Center*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *OPC Contribution; no. 38. NOAA technical memorandum NWS NMC*; 68 (Rev. 1). "June 1989."

QC996 .T33 no.68 (1989)

Finger, Frederick G., Arthur R. Thomas. 1973. *Toward developing a quality control system for rawinsonde reports*. 1973. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 52. "February 1973."

Abstract: "Results of investigations indicate that many of the problems that prevent rawinsonde data from reaching the user can be rectified by proper quality control procedure. Methods have been developed to test the effectiveness of quality control, and these have resulted in significant improvements in data usage in NMC. Typically, data utilization from U.S. moving ships in the Pacific was increased from 35% to 95% in less than 3 years; from the NWS Pacific Region, data procurement and use more than doubled between 1968 and 1972; and improvements in data from conterminous U.S. stations could be projected to indicate an increase of 5,000 additional observations being processed annually at NMC. Data quality can be improved and sustained only while active monitoring and deficiency notification programs are in operation. When such programs are terminated, data quality deteriorates to original levels. An effective program to adequately control data quality must involve integrated functions at data sources, communications centers, processing centers, and, most importantly, headquarters elements."

QC996 .T33 no.52

Fjørtoft, Ragnar. 1952. *On a numerical method of integrating the barotropic vorticity equation*. *Tellus* 4: 179-194.

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CD-ROM: [Fjortoft\\_1952.PDF](#)

Fjørtoft, Ragnar. 1962. *On the integration of a system of geostrophically balanced prognostic equations*. In: International Symposium on Numerical Weather Prediction (1960 :Tokyo, Japan). *Proceedings of the International Symposium on Numerical Weather Prediction in Tokyo*. Tokyo: Meteorological Society of Japan, 1962, p. 153-158.

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CD-ROM: [Fjortoft\\_1962.PDF](#)

Gerrity, Joseph P. 1977. *The LFM model - 1976: a documentation*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 60. "December 1977."

QC996 .T33 no.60

Gerrity, Joseph P., Jr., Ronald D. McPherson. 1970. *Noise analysis of a limited-area fine-mesh prediction model*. Washington, D.C.: U.S. Dept. of Commerce, Environmental Science Services Administration, Weather Bureau, National Meteorological Center. *ESSA technical memorandum WBTM NMC*; 46. "February 1970."

Abstract: "A diagnostic study of the mechanism responsible for producing high wave number oscillations (noise) in the numerical solution of the nonlinear equations governing a free surface, barotropic, atmospheric model is reported. The oscillations are identified as predominantly the result of the lattice of the difference equations and the boundary conditions employed to specified the solution. The analytic methods employed involved the use of space and time sections of the numerical solutions to provide a set of hypotheses. These are tested utilizing a one-dimensional linear analog of the model equations. The solution of the linear equations is obtained analytically, by the method of characteristics, and numerically. Several possibilities for removing the noise are suggested. Some improvement is demonstrated when the suggested methods are used in the linear one-dimensional analog."

QC996 .T33 no.46

CD-ROM: [Gerrity McPherson 1970 Feb.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Gerrity McPherson 1970 Feb.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Gerrity_McPherson_1970_Feb.PDF)

Gerrity, Joseph P., Jr., Ronald D. McPherson. 1970. *Recent studies of computational stability*. Washington, D.C.: U.S. Dept. of Commerce, Environmental Science Services Administration, Weather Bureau, National Meteorological Center. *ESSA technical memorandum WBTM NMC*; 48. "May 1970."

Abstract: "Investigations of the computational stability of finite difference formulations of the equations governing shallow water, non-linear gravitational oscillations are reported. The investigations consist of empirical analyses of the results of numerical integration of the quasi-two-dimensional and fully two-dimensional versions of the equations. The results obtained in the quasi-two-dimensional experiments suggested the formulation of filters for use in approximating the non-linear terms. By filtering certain high frequency non-linear interactions, it is found possible to archive relatively well-behaved long term integrations. A number of efforts to extend this result to the fully two-dimensional equations are indicated. One procedure was found to be practically successful, but is finally rejected on the basis of the instability of its linear counterpart. The paper concludes a critique of possible extensions of the investigation."

QC996 .T33 no.48

CD-ROM: [Gerrity McPherson 1970 May.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Gerrity McPherson 1970 May.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Gerrity_McPherson_1970_May.PDF)

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National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 53. "July 1973."  
QC996 .T33 no.53

Gilchrist, B., George P. Cressman. 1954. *An experiment in objective analysis*. *Tellus* 6 (4): 309-318.

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Gilchrist, B. 1955. *Introduction to numerical methods*. In: Workshop on Numerical Weather Prediction (1954 : George Washington University). *Proceedings of the Workshop on Numerical Weather Prediction, held at George Washington University, Washington, D.C., June 2, 3, 4 1954*. Washington. D.C.: U.S. Dept. of Commerce, Weather Bureau, 1955, p. 28-35.

QC996 .W68 1954

CD-ROM: [Gilchrist 1955.PDF](#)

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QC851 .T67 1953

CD-ROM: [Gilchrist Sept 1954.PDF](#)

Gross, Edward. 1970. *The National Air Pollution Potential Forecast Program*.

Washington, D.C.: U.S. Dept. of Commerce, Environmental Science Services Administration, Weather Bureau, National Meteorological Center. *ESSA technical memorandum WBTM NMC*; 47. "May 1970."

Abstract: "Air Pollution Potential (APP) is definable as a measure of the inability of the atmosphere to adequately dilute and disperse pollutants emitted into it based on values of specific meteorological parameters of the macroscale features. To delineate areas on the macroscale in which high APP has the greatest probability of occurring, a stagnation index has been developed independent of mixing height and transport wind speed data.

The associated

stagnation conditions are usually manifested stable stratification, weak horizontal wind speed components and little, if any, significant precipitation. We describe the numerical and subjective

means by which stagnation areas are delineated, mixing height and transport wind speed calculated, and how high APP conditions are transmitted to our users via facsimile and teletypewriter. The resulting program is a joint effort of the Development Division of the National Meteorological Center (NMC) and the Division of Meteorology of the National Air Pollution Control Administration (NAPCA)."

QC996 .T33 no.47

CD-ROM: [Gross 1970.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Gross\\_1970.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Gross_1970.PDF)

Gustafson, Arthur F., James E. McDonell. 1965. *The derivation of first-guess fields for*

*objective analyses, 1000 mb to 500 mb.* Washington, D.C.: U.S. Dept. of Commerce, Environmental Science Services Administration, Weather Bureau, National Meteorological Center. Mimeograph. *Technical memorandum (National Meteorological Center (U.S.))*; no. 31.

Abstract: "This memorandum describes the current NMC numerical system of deriving first-guess fields for constant-pressure height and temperature analyses up to 500 mb. This system, which became operational at NMC in February 1965, insures reasonable static stabilities as implied by the objective height analyses. It reduces the amount and variety of bogus data previously used and allows the monitoring analyst to concentrate on two key analyses only, i.e., the 1000 mb and 500 mb analyses."

QC996 .T33 no.31

CD-ROM: [Gustafson McDonell 1965.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Gustafson\\_McDonell\\_1965.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Gustafson_McDonell_1965.PDF)

Gustafson, Arthur F. 1965. *Objective analysis of the tropopause.* Washington, D.C.: U.S. Dept. of Commerce, Environmental Science Services Administration, Weather Bureau, National Meteorological Center. Mimeograph. *Technical memorandum (National Meteorological Center (U.S.))*; no. 33.

Abstract: "This memorandum describes the method and the theoretical basis for an objective tropopause analysis program. this IBM 7094 program is used operationally at NMC to provide input to Dr. Frederick Shuman's primitive equations, 'PE,' forecast model. Two fields for the 1977-point hemispheric grid are produced: one for the tropopause pressure; the other for the tropopause temperature."

QC996 .T33 no.33

CD-ROM: [Gustafson 1965.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Gustafson\\_1965.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Gustafson_1965.PDF)

Gustafson, Arthur F. 1964. *Objective isentropic analysis.* Washington, D.C.: U.S. Dept. of Commerce, Weather Bureau, National Meteorological Center. Mimeograph. *Technical memorandum (National Meteorological Center (U.S.))*; no. 30.

QC996 .T33 no.30

CD-ROM: [Gustafson 1964.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Gustafson\\_1964.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Gustafson_1964.PDF)

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QC996 .T33 no.28

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Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Gustafson\\_1963.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Gustafson_1963.PDF)

The Institute for Advanced Study. *The meteorology project: summary of work under Contract N-6-ori-139 (1), NR 082-008 during calendar year 1952.* [Princeton, N.J.: Institute for Advanced Study.]

CD-ROM: [IAS 1952.PDF](#)

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CD-ROM: [Hart 1965.PDF](#)

Hinkelmann, von K. 1959. Ein numerisches Experiment mit den primitiven Gleichungen.  
In: *The atmosphere and the sea in motion; scientific contributions to the Rossby memorial volume.* Bert Bolin, ed. New York, N.Y.: Rockefeller Institute Press, p. 486-500.

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CD-ROM: [IAS Minutes 1952.PDF](#)

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QC996 .I58 1960

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QC858.R4 H35 2003

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"A partnership of effort between: Air Weather Service, Air Force; Aerology Service, Navy; Weather Bureau, Dept. of Commerce"--P. [1].  
QC996 .T342 1955

CD-ROM: [JNWPU Fact Sheet 1955.PDF](#)  
Internet: [http://docs.lib.noaa.gov/rescue/JNWP/JNWPU\\_Fact%20Sheet\\_1955.PDF](http://docs.lib.noaa.gov/rescue/JNWP/JNWPU_Fact%20Sheet_1955.PDF)

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CD-ROM: [Knighting 1955 Feb.PDF](#)  
Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Knighting\\_1955\\_Feb.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Knighting_1955_Feb.PDF)

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*Technical note (United States. Weather Bureau)* ; 30. *Technical memorandum (National Meteorological Center (U.S.))*; no. 35. "January 1966."

Abstract: "The requirements for a complete moisture parameter include not only measure of the degree of saturation but also a measure of the quantity of water vapor. "Saturation Thickness" meets these two requirements when the thickness of the layer is also considered. The saturation thickness is defined as a hypothetical thickness required to produce saturation, given the moisture quantity and lapse rate of the layer. Tables of saturation thickness are given

for the moist and dry adiabatic, and U.S. Standard Atmosphere lapse rate over a temperature range at 1000 mb of -40°C to +40°C. The 1000-500 mb layer has been divided into the three layer intervals corresponding to the standard radiosonde levels. The tables should obviate the efforts of other investigators to derive this information. The significance of errors arising from assumptions and computational approximations is investigated in the Appendix."

QC996 .T33 no.35

CD-ROM: [LaRue Younkin 1966.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/LaRue\\_Younkin\\_1966.PDF](http://docs.lib.noaa.gov/rescue/JNWP/LaRue_Younkin_1966.PDF)

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CD-ROM: [mwr-Manabe Smagorinsky Strickler 1965 Dec.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/mwr/093/mwr-093-12-0769.pdf>

Manabe, Syukuro, Joseph Smagorinsky. 1967. Simulated climatology of a general circulation model with a hydrologic cycle. II, Analysis of the tropical atmosphere. *Monthly Weather Review* 95 (4): 155-170.

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CD-ROM: [mwr-Smagorinsky Manabe Holloway Stone 1970.PDF](#)  
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Mathur, Makut B., Alan M. Shapiro. 1992. *A Procedure to reduce northward drift of tropical storms in a numerical model*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 71. "July 1992."  
QC996 .T33 no.71

McDonell, James E. 1962. *On the objective analysis system used at the National Meteorological Center*. Washington, D.C.: U.S. Dept. of Commerce, Weather Bureau, National Meteorological Center. Mimeograph. *Technical memorandum (National Meteorological Center (U.S.))*; no. 23.  
Abstract: "Operational machine-made analyses have been produced at NMC since April 1958 using the analysis scheme described by Cressman in November 1959. No basic changes have been made in the analysis methods, but many additions and changes have been incorporated into analysis procedures presently in use. Currently, analyses of height at 100 mb, and of height, temperature, and wind at 850, 700, 500, 300, and 200 mb are made at least twice daily on the IBM 7090. These analyses provide the initial input data for the forecast models being used at NMC. This memorandum describes the modifications and additions which have been made to improve the objective analysis system."

QC996 .T33 no.23

CD-ROM: [McDonell 1962.PDF](#)  
Internet: [http://docs.lib.noaa.gov/rescue/JNWP/McDonell\\_1962.PDF](http://docs.lib.noaa.gov/rescue/JNWP/McDonell_1962.PDF)

McDonell, James E. 1967. *A Summary of the first-guess fields used for operational analyses*. Suitland, Md.: U.S. Dept. of Commerce, Environmental Science Services Administration, Weather Bureau, National Meteorological Center. *Technical memorandum (National Meteorological Center (U.S.))*; no. 38. "February 1967."  
QC996 .T33 no.38

CD-ROM: [McDonell 1967.PDF](#)  
Internet: [http://docs.lib.noaa.gov/rescue/JNWP/McDonell\\_1967.PDF](http://docs.lib.noaa.gov/rescue/JNWP/McDonell_1967.PDF)

McInturff, Raymond. M., Frederick G. Finger, Keith W. Johnson. 1979. *Day-night differences in radiosonde observations of the stratosphere and troposphere*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 63. "September 1979."  
QC996 .T33 no.63

McPherson, Ronald D. 1971. *Recent research in numerical methods at the National*

Meteorological Center. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 50. "April 1971."

QC996 .T33 no.50

CD-ROM: [McPherson 1971.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/McPherson\\_1971.PDF](http://docs.lib.noaa.gov/rescue/JNWP/McPherson_1971.PDF)

McPherson, Ronald D., Robert E. Kistler. 1975. *Theoretical and experimental comparison of selected time integration methods applied to four-dimensional assimilation*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 56. "April 1975."

QC996 .T33 no.56

Miyakoda, K., Joseph Smagorinsky, R. F. Strickler, G. D. Hembree. 1969. *Experimental extended predictions with a nine-level hemispheric model*. *Monthly Weather Review* 97 (1): 1-76.

JOURNALS

CD-ROM: [mwr-Miyakoda Smagorinsky Strickler Hembree 1969.PDF](#)

Internet: <http://docs.lib.noaa.gov/rescue/mwr/097/mwr-097-01-0001.pdf>

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Internet: <http://www.nap.edu/books/0309069416/html>

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QC996 .N37 1968

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QC996 .N37 1971

National Meteorological Center newsletter. <1971-1975> Suitland, Md.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center.

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Continued by: *Newsletter (National Meteorological Center (U.S.))*

Newsletter (National Meteorological Center (U.S.)) <1978> Suitland, Md.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center.

JOURNALS

Previous title: *National Meteorological Center Newsletter*.

Continued by: *The NMC News*.

The NMC news. <1994-1995> Suitland, Md.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center.

#### JOURNALS

Previous title: *Newsletter (National Meteorological Center (U.S.))*

Newell, John E., Dennis G. Deaven. 1981. *The LFM-II model - 1980.* Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 66. "August 1981."

QC996 .T33 no.66

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QC996 .T33 no.42

CD-ROM: [Nitta Hovermale 1967.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Nitta\\_Hovermale\\_1967.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Nitta_Hovermale_1967.PDF)

Nitta, Takashi, Kazuo Saito. 2004. *Early history of the operational numerical weather prediction in Japan.* [From the authors' personal collection.]

CD-ROM: [Nitta Saito 2004.PDF](#)

*Numerical weather prediction.* [Excerpts.] 1956. [Prepared under the supervision of LCDR Albert L. Stickles, II, USN with the assistance of LCDR Milton B. Moreland, USN and others.] Washington, D.C.: United States, Office of the Chief of Naval Operations. *NAVAER*; 50-1P-541. "June 1956."

CD-ROM: [NWP NAVEAR 50-1P-541 1956.PDF](#)

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QC996 .J64 1st. half (1964)-2nd half (1971)

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O'Connor, James. F. 1966. *Catalog of 5-day mean 700-mb height anomaly centers 1947-1963*

*and suggested applications.* Washington, D.C.: U.S. Dept. of Commerce, Environmental Science Services Administration, Weather Bureau, National Meteorological Center.

*Technical note (United States. Weather Bureau)* ; 40. *Technical memorandum (National Meteorological Center (U.S.))*; no. 37. "April 1966."

Abstract: "All significant centers of height departures from normal throughout the Northern Hemisphere north of 20°N for two 5-day periods each week from 1947 to 1963 are presented in catalog form. The locations of centers are grouped according to the nearest 10° of latitude and longitude, and by sign and season. The sign, date, and intensity

identify centers within each group. A discussion of uses and plans for group processing are included.”

QC996 .T33 no.37

CD-ROM: [O'Connor 1966.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/O'Connor\\_1966.PDF](http://docs.lib.noaa.gov/rescue/JNWP/O'Connor_1966.PDF)

**Office Notes series:** Office notes no. 1-437 are available online in PDF format from the NOAA's National Centers for Environmental prediction home page at:

<http://www.emc.ncep.noaa.gov/officenotes/>

1. *Office notes (Joint Numerical Weather Prediction Unit (U.S.))*. No. 1 (1955)-no. 15 (1958).
2. *Office notes (National Meteorological Center (U.S.))*. No. 16 (1960)-no. 410 (1995)
3. *Office notes (National Centers for Environmental Prediction (U.S.))*. No. 411 (1995)-present.

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Abstract: "Certain truncation errors occur in numerical weather prediction models when a grid-point representation of the variables is used to simulate advection phenomena. The errors are manifest by excessive values of the variables and upstream propagation of small-scale noise. The mechanism causing these errors is studied by numerical experiments and harmonic analysis. Several ways to avoid or prevent errors of this kind are cited. Inclusion of a horizontal diffusion term in the scheme may be necessary to remove the errors completely."

QC996 .T33 no.45

CD-ROM: [Okland 1969.PDF](#)

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QC851 .A6 v.40, no.11

CD-ROM: [Phillips Blumen Cote 1960.PDF](#)

Phillips, Norman A. 1951. A simple three-dimensional model for the study of large-scale extratropical flow patterns. *Journal of Meteorology* 8 (6): 381-394.

JOURNALS

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CD-ROM: [Phillips 2000.PDF](#)

Platzman, George W. 1979. *The ENIAC computations 1950: gateway to numerical weather prediction*. *Bulletin of the American Meteorological Society* 60 (4): 302-312. Abstract: "The first numerical weather prediction was made on the ENIAC computer in 1950. This lecture gives some of the historical background of that event and a partially narrative account of it."

QC851 .A6 v.60, no.4

CD-ROM: [Platzman 1979.PDF](#)

Platzman, George W. 1968. *Richardson's weather prediction*. *Bulletin of the American Meteorological Society* 49 (5) pt.1: 496-500. [Richardson's 1952 letter to Charney.]

QC851 .A6 v.19, no.5

CD-ROM: [Platzman 1968.PDF](#)

Platzman, George W. 1955. *Survey of the present worldwide status of work in field of numerical weather prediction*. Conducted by: The University of Chicago, Dept. of Meteorology.

"Summary of work being done in the field of numerical weather prediction by individuals of organization who responded to a questionnaire from The University of Chicago dated 17 October 1955. Prepared by Gene E. Birchfield."

CD-ROM: [Platzman Survey 1955.PDF](#)

Electronic access to more information on the survey:

<http://www.cbi.umn.edu/collections/inv/cbi00036.html>

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Polger, Paul D. 1971. *A Study of non-linear computational instability for a two-dimensional model*. Washington, D.C.: U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Meteorological Center. *NOAA technical memorandum NWS NMC*; 49. "February 1971."

QC996 .T33 no.49

CD-ROM: [Polger 1971.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Polger\\_1971.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Polger_1971.PDF)

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Abstract: "The main purpose of the present memorandum is to describe and compare the results of the two experiments in 1000 mb prognosis. In section 2, the modeling assumptions and computational procedures of the Eulerian experiment are reviewed. The results of the experiment are evaluated subjectively in section 3 and some sample forecasts are shown. The background

of the quasi-Lagrangian experiment is outlined in section 4. Finally comparisons of the Eulerian and Lagrangian solutions in a limited number of cases are presented in section 5.”

QC996 .T33 no.26

CD-ROM: [Reed 1963.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Reed\\_1963.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Reed_1963.PDF)

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QC996 .R65 1922

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iterative method, whereby a conditionally convergent sequence of approximate solutions can be generated from a known initial distribution of pressure. this method is applied to the solution of a system of equations which are one order of approximation higher than the equations of quasi-geostrophic motion, and provides basis for practicable method of numerical forecasting.”

QC996 .T35 1955

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QC996 .T33 no.39

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QC996 .T33 no.19

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Abstract: “Error charts for the numerical barotropic forecasts prepared at the Joint Numerical Weather Prediction Unit since October, 1957 have revealed retrogressive patterns of very long wave-length. These errors are shown to be due to changes in the large scale components predicted by the numerical model. These components are actually quasi-stationary in the atmosphere. Forecasts prepared with an approximation to these components held unchanged show significantly increased accuracy. Finally, some of the difficulties in developing a more acceptable physical approach to this problem are outlined.”

QC996 .T33 no.13

CD-ROM: [Wolff 1958.PDF](#)

Internet: [http://docs.lib.noaa.gov/rescue/JNWP/Wolff\\_1958.PDF](http://docs.lib.noaa.gov/rescue/JNWP/Wolff_1958.PDF)

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Abstract: “Information contained herein should be of primary interest to the short-range forecaster dealing with the snow versus rain problem. Also, those experimenting with obtaining snow forecasts from numerical prediction precipitation models may find it informative as to lower tropospheric thermal structure during important snowfall. The substance of this technical memorandum is taken from an unpublished report written in 1957 by R.J. Youngkin entitled, ‘1000-850-mb and 850-700-mb thickness-precipitation type relations.’”

QC996 .T33 no.40

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